

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-21. (cancelled)

22. (currently amended) A method for detecting when a vehicle deviates from a planned route comprising:

tracking a first estimated position of the vehicle using signals from a positioning system that are received at the vehicle;

tracking a second estimated position of the vehicle using an estimate of the distance traveled along the planned route, wherein the planned route includes a first point along the route and a path following the first point, and wherein tracking the second estimated position includes detecting when the vehicle is at the first point on the planned route and estimating the distance traveled along the path following the first point; and

detecting that the vehicle has deviated from the planned route when the first estimated position and the second estimated position differ by at least a tolerance distance.

23. (cancelled)

24. (currently amended) The method of claim [[23]]22 further comprising adjusting the tolerance distance, including reducing the tolerance distance when the vehicle is detected to be at the first point on the planned route, and increasing the tolerance distance as the vehicle travels along the path following the first point.

25. (currently amended) Software recorded on a computer readable medium for causing an in-vehicle computer to perform the functions of:

tracking a first estimated position of a vehicle using signals from a positioning system that are received at the vehicle;

tracking a second estimated position of the vehicle using an estimate of the distance traveled along the planned route, wherein the planned route includes a first point along the route and a path following the first point, and wherein tracking the second estimated position includes detecting when the vehicle is at the first point on the planned route and estimating the distance traveled along the path following the first point; and

detecting that the vehicle has deviated from the planned route when the first estimated position and the second estimated position differ by at least a tolerance distance.

26. (currently amended) A vehicle tracking system comprising:

a first position estimator including a positioning system receiver, for determining a first estimate of the vehicle's location determined using information received from the positioning system receiver;

storage for a planned route;

a second position estimator coupled to a vehicle motion sensor and to the storage for the planned route, for determining a second estimate of the vehicle's location using information received from the vehicle sensor and the planned route, wherein the planned route includes a first point along the route and a path following the first point, and wherein tracking the second estimated position includes detecting when the vehicle is at the first point on the planned route and estimating the distance traveled along the path following the first point; and

an off-route detector coupled to the first position estimator and to the second position estimator, for comparing the first estimate of the vehicle's position and the second estimate of the vehicle's position.